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明細書

1. 考案の名称

水洗便器用弁装置

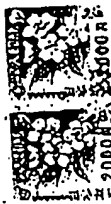
2. 採用新案登録請求の範囲

弁本体に形成された流入室および流出室と、この流入室と流出室とを通過する大径の玉弁口と、この玉弁口と玉弁口に設けられ上記流入室と流出室とを通過する小径の副弁口と、上記玉弁口を閉鎖する玉逆止弁機構と、上記副弁口を閉鎖する副逆止弁機構とを具備したことを特徴とする水洗便器用弁装置。

3. 考案の詳述の説明

本考案は水洗便器用の弁装置に関する。
一般に男子用大便器および女子用大小便器は使用後に手動によつて弁を回して便水を流すように構成されていた。ところで、このようにすると便器使用中に排水管や臭気を流すために逆止的に水を流す使用が多く、多量の水を流す不具合があった。逆に便器の使用後に水を流さない、台には便器が乾いているため、汚

公開実用 昭和55-24389



実用新案登録願(1)

(4,000円) 昭和53年8月8日

特許庁長官 廣谷 善二 殿

1. 考案の名称

水洗便器用弁装置

2. 考案者

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53-108520

53-24389

53-24389

図が便器の取付部分に付着して完全に洗浄できないうちが、このように不具合を解消するため、便器の使用を開始すると自動的に少量の水を便器に連続的に流して予備洗浄をなし、この予備洗浄の水回りで排気音を消し、用後が終了すると多量の水を流して本洗浄をなすような装置が開始されている。しかしながら、このようなものでは本洗浄をなすか予備洗浄をなすかの2個の非が必発となる。ところで、このような設備を既設の便所に改修する場合には、当然その改修が必発となるが、使用者を熟知する強固なこれによつて上記の非を消滅するたものの設備ははいずれも電氣的なものであつて取付、配線等もきつめて容易であるが、上記の2個の非を抑制するには大規模な配管工事が必要とし、その改修費がきつめて高くなる不具合があつた。

本考案は以上の事情にもとづいてなされたもので、その目的とするところは便器の予備洗浄および本洗浄をなすものにおいて、既設の便所

に大規模な配管工事をする必要なく取付けられることのできる水洗便器用弁装置を得ることにある。以下本考案を図面に示す一実施例にしたがつて説明する。図中1は弁本体であつて、この弁本体1内には流入室2および流出室3が形成されている。そして、この流入室2および流出室3を通過する大径の主弁口4が形成されている。また、この主弁口4と並列に上記流入室2と流出室3を通過する小径の副弁口5が形成されている。そして、上記主弁口4は弁本体1に取付けられた主電磁弁機構6によつて開閉されるように制御されている。また上記副弁口5は弁本体1に取付けられた副電磁弁機構7によつて開閉されるように制御されている。8は主電磁弁機構6の弁体であつて、流入室2側から主弁口4に接している。そして、この弁体8には受圧体（図示せず）が取付けられ、この受圧体の両側には流入室2の圧が導入され、この受圧体の一方の圧を副弁口5によつて逃がすことにより、その差圧で受圧体が動き、弁体8を開閉するよ

ていう。また、上記の両電田井越電田井の構造をなすものであつて、イド、Jはブラッシュヤである。作成された本考案の一例は、図(図示せず)からの信号によつて7のソレノイドI.0が付勢され、Iが吸引されて弁開口Sが閉く。この弁開口Sを越つて少量の水が予供沈槽をなす。次に制御装置より主電磁弁線路6が作動されるとIが閉かれ、多量の水が留れて使なす。

本考案は上記の一例は限定されず電磁弁機構の構成は必ずしも本考案の一例の非本体に並列に大小径の弁開口を形成し、これらによる主電磁弁機構および副電田井ものである。したがつて所量の水の作用をなすことができ、既存の

便所の改善をなす場合には既存の沈槽弁と、その弁位置を交換するだけで済むので面倒な配管工事等は不要となり、改善が容易になる等その効果は大である。

4. 図面の簡単な説明

図面は本考案の一例の断面図である。

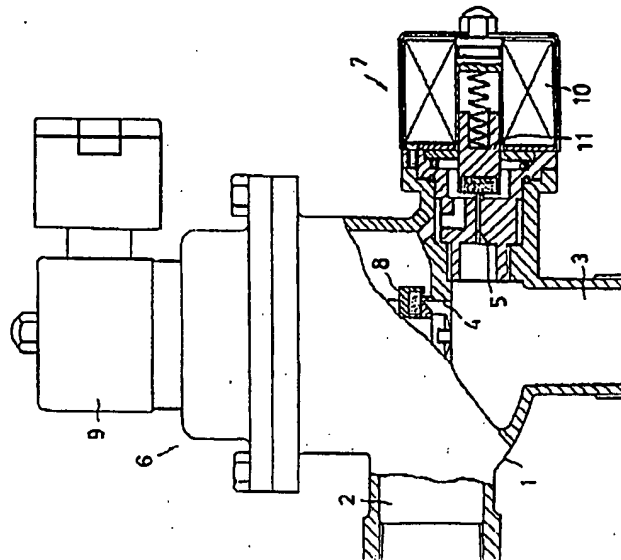
- 1 ... 弁本体
- 2 ... 弁入室
- 3 ... 側用室
- 4 ... 主弁口
- 5 ... 副弁口
- 6 ... 主電磁弁線路
- 7 ... 副電田井線路

出願人代理人 弁護士 鈴 江 武 彦

公開実用 昭和55

うに接続されている。エ
機は通常の電機マシ
10はソレノイド、11
以上の如く接続され
ます。制御装置は図示
て電磁弁は機アのソレ
ブランジャ111が吸引
したがって小径の副弁口
直れ、便器の予備洗浄を
らの信号により主電磁弁
大径の主弁口11が開か
るの本洗浄をなす。

なお、本考案は1)の
ず、たとえば電磁弁は弱
しも上記の一実施例には
上迄の如く本考案は1
径の主弁口と小径の副弁
それれれ閉鎖する主電磁
機構を設けたものであり
なる2相の弁の作用をな



5. 添付書類の目録

- (1) 委任状 1通
- (2) 許可証 1通
- (3) 図面 1通
- (4) 図面 1通
- (5) 仕様書 1通

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55-24389

Japanese Unexamined Utility Model Publication No.55-24389

Utility Model Application No. 53-108520

Date of Application: August 8, 1978

1. Title of the Invention: Flush valve
2. Inventor: Masakazu Matsunaga
3. Applicant: F.M.Valve Seisakusho, Saitama, Japan
4. Attorneys: Takehiko Suzue and two others

SPECIFICATION

1. Title of the Invention

Flush valve

2. Claim for Utility Model Registration

A flush valve having inlet and outlet chambers both formed in a valve body; a primary valve port of a larger diameter communicating said inlet chamber with said outlet chamber; a secondary valve port of a smaller diameter disposed in parallel relationship to said primary valve port and communicating said inlet chamber with said outlet chamber; a primary solenoid valve mechanism for opening and closing said primary valve port; and a secondary solenoid valve mechanism for opening and closing said secondary valve port.

3. Description of the Invention

The present invention relates to flush valves.

In general, fecal stool for men and fecal and urinary stool for ladies were so structured that valves were manually opened after use of the stools to flush the toilets. However, stools of such structure had problems

that many persons caused water to flow continuously during use of toilets so as to destroy the discharge noise and smell and that, on the other hand, if no water was caused to flow during use of the stools, the filth was stuck to dry portions of the stools and could not be washed away simply by the water flow. In order to solve such problems, a device was developed which was operative such that, when a use of a stool was commenced, water was automatically supplied continuously to the stool at a low rate to preliminarily wash the stool as well as to destroy the discharge noise by the sound of the water flow for the preliminary washing and, when the use of the stool was finished, the rate of the water flow was increased to effect the main washing of the stool. Such device, however, necessitated two valves, one for the main washing and the other for the preliminary washing. In order to provide an existing toilet with such a device, it was naturally required to revamp the toilet. Although means for detecting a user and control means operable by the detecting means to open and close the valves could both be electrical components which could be easily installed and electrically wired, the installation of the two valves required a piping work on a large scale. The revamping, therefore, disadvantageously costed too much.

The present invention has been made under the circumstance pointed out above and has an object to provide a flush valve which can be installed in an existing toilet without any large-scale piping work, the flush valve being for the stool of the type in which preliminary and main

The present invention will now be described with reference to the accompanying drawing which shows an embodiment of the invention. Reference numeral 1 in the drawing designates a valve body having formed therein an inlet chamber 2, an outlet chamber 3 and a primary valve port 4 of a larger diameter which communicates the inlet chamber 2 with the outlet chamber 3. The valve body 1 is also formed therein with a secondary valve port 5 of a smaller diameter which is disposed in parallel relationship to the primary valve port 4 and communicates the inlet chamber 2 with the outlet chamber 3. The primary valve port 4 is so arranged as to be opened and closed by a primary solenoid valve mechanism 6 mounted on the valve body 1, while the secondary valve port 5 is so arranged as to be opened and closed by a secondary solenoid valve mechanism 7 also mounted on the valve body 1. Reference numeral 8 designates a valve member of the primary solenoid valve mechanism 6, the valve member 8 extending from the inlet chamber 2 and being seated on the primary valve port 4. A pressure-receiving body (not shown) is mounted on the valve member 8 and has opposite sides exposed to the pressure in the inlet chamber 2. The arrangement is such that the pressure acting on one side of the pressure-receiving body of the valve member is released by a solenoid valve 9 to establish a pressure differential by which the pressure receiving body is operated to move the valve member 8 between opened and closed positions. The secondary solenoid valve mechanism 7 is of a conventional

solenoid valve structure and has a solenoid 10 and a plunger 11.

The embodiment of the invention having the described structure operates as follows: First of all, the solenoid 10 of the secondary solenoid valve mechanism 7 is actuated by a signal from a controller (not shown) so that the plunger 11 is pulled to open the secondary valve port 5. Accordingly, water flows at a low rate through the secondary valve port 5 of the smaller diameter to preliminarily wash an associated stool. Then, the primary solenoid valve mechanism 6 is actuated by another signal from the controller to open the primary valve port 4 of the larger diameter, so that the water flows at a high rate to effect a main washing of the stool.

The present invention is not limited to the embodiment described above. For example, the details of the solenoid valve mechanisms may be of structures other than those of the described embodiment.

As described above, the flush valve according to the present invention has a single valve body provided with primary and secondary valve ports disposed in parallel with each other, and primary and secondary solenoid valve mechanisms for opening and closing the valve ports, respectively. Accordingly, the flush valve of the invention can act as two valves having different flow capacities. When an existing toilet is to be revamped, the flush valve of the present invention can advantageously be simply substituted for the existing flush valve without any troublesome piping work required, to thereby facilitate

simplified revumping.

4. Brief Description of the Drawing

The accompanying drawing is a longitudinal sectional view of an embodiment of the present invention.

- 1...Valve body
- 2...Inlet chamber
- 3...Outlet chamber
- 4...Primary valve port
- 5...Secondary valve port
- 6...Primary solenoid valve mechanism
- 7...Secondary solenoid valve mechanism